

CLAIMS

1. (Currently Amended) A data transmitting apparatus for transmitting a plurality of real time streams and a non-real time stream over a common transmission path, comprising:

a storing portion for storing first packets that compose the real time streams and second packets that compose the non-real time stream so that a first-in-first-out operation is respectively performed for every stream;

a counter portion for counting ~~an interval time~~ a predetermined time interval between transmissions times of the first packets for every said real time stream; and

a scheduler portion for transmitting the first packets stored for every said real time stream in the storing portion after every said interval time period predetermined time interval, calculating a transmission end time of the first packets from the ~~interval time~~ predetermined time interval and ~~at the transmission time times~~ of the first packets of each of the real time streams for every said real time stream, ~~and~~ transmitting a first packet whose transmission end time is the earliest in the first packets when the transmission times of the first packets overlap, and transmitting the second packets when the ~~transmission intervals~~ predetermined time interval between transmissions of said first packets are longer than the transmission times of the second packets.

2. (Cancelled)

3. (Previously Presented) The data transmitting apparatus as set forth in claim 1, wherein the scheduler portion is configured to treat times shorter than the transmission times of the second packets as new transmission times of the second packets when the second packets are not transmitted while a predetermined number of the first packets are transmitted.

4. (Currently Amended) A data transmitting method for transmitting a plurality of real time streams and a non-real time stream over a common transmission path, comprising:

a first step of storing first packets that compose the real time streams and second packets that compose the non-real time stream so that a first-in-first-out operation is respectively performed for every stream;

a second step of counting ~~an interval time of the first packets~~ a predetermined time interval between transmissions times of the first packets for every said real time stream; and

a third step of transmitting the first packets stored for every said real time stream in said first step after every said ~~interval time period~~ predetermined time interval, calculating a transmission end time of the first packets from the ~~interval time~~ predetermined time interval and ~~a the~~ transmission ~~time times~~ of the first packets of each of the real time streams for every said real time stream, ~~and~~ transmitting a first packet whose transmission end time is the earliest in the first packets when the transmission times of the first packets overlap, and transmitting the second packets when the transmission intervals of said first packets are longer than the transmission times of the second packets.

5. (Cancelled)

6. (Currently Amended) The data transmitting method as set forth in claim 4, wherein in said third step, times shorter than transmission times of the second packets are treated as new transmission times of the second packets when the second packets are not transmitted while a predetermined number of the first packets are transmitted.

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (New) The data transmitting apparatus as set forth in claim 1, wherein the counter portion is configured to maintain each predetermined time interval constant for every said real time stream.

16. (New) The data transmitting method as set forth in claim 4, wherein in said second step of counting, each predetermined time interval is maintained constant for every said real time stream.

17. (New) A data transmitting apparatus which transmits a plurality of real time streams and a non-real time stream over a common transmission path, said apparatus comprising:

- a buffer portion which stores first packets of said real-time streams and second packets of said non-real-time stream;

- a counter which counts a predetermined time interval between transmission times of said first packets for each real time stream;

- a calculator which calculates transmission end times of both said first packets and said second packets; and

- a scheduler configured to permit said buffer portion to:

- transmit one of said first packets after each predetermined time interval for each real time stream;

- transmit said first packets in order of earliest transmission end times when transmission times of said first packets of different streams overlap; and

- transmit said second packets only when said predetermined time interval is longer than the transmission time of said second packets.

18. (New) The data transmitting apparatus according to claim 17, where said buffer portion is a first-in first-out buffer portion.

19. (New) The data transmitting apparatus as set forth in claim 17, wherein said scheduler is further configured to treat packets of non-real-time stream as if their transmission times were shorter when packets of non-real-time stream are not transmitted after a predetermined time has elapsed.

20. (New) The data transmitting apparatus as set forth in claim 17, wherein said scheduler is further configured to treat packets of non-real-time stream as if their transmission times were shorter when packets of non-real-time stream are not transmitted after a predetermined number of packets of real-time streams have been transmitted.

21. (New) The data transmitting apparatus as set forth in claim 17, wherein the counter is configured to maintain each predetermined time interval constant for every said real time stream.

22. (New) A data transmitting method for transmitting a plurality of real time streams and a non-real time stream over a common transmission path, comprising the steps of:

storing first packets of real-time streams and second packets of non-real-time stream in memory buffers;

counting a predetermined time interval between transmission times of said first packets for each real time stream;

calculating transmission end times of both first packets and said second packets;

transmitting one of said first packets after each predetermined time interval;

transmitting said first packets of real-time streams in order of earliest transmission end times when transmission times of said first packets of different streams overlap; and

transmitting said second packets only when a predetermined time of a real time stream is longer than the transmission end time of said second packets.

23. (New) The data transmitting method according to claim 22, wherein in said storing step, first packets and second packets are stored in a first-in first-out buffer portion.

24. (New) The data transmitting method according to claim 22, further comprising treating packets of non-real-time stream as if their transmission times were shorter when packets of non-real-time stream are not transmitted after a predetermined time has elapsed.

25. (New) The data transmitting method according to claim 22, further comprising treating packets of non-real-time stream as if their transmission times were shorter when packets of non-real-time stream are not transmitted after a predetermined number of first packets have been transmitted.

26. (New) The data transmitting method as set forth in claim 22, wherein in said counting step of counting, each predetermined time interval is maintained constant for every said real time stream.